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The influence of negative newspaper coverage on consumer confidence: the Dutch case

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This paper studies the empirical relationship between the real economy, consumer confidence and economic news coverage in national newspapers for the Netherlands during the period 1990-2008. Media-attention for economic developments Granger-causes consumer confidence, with more negative news decreasing consumer confidence; this result holds when controlling for the real economy (stock-market). This suggests that in line with many popular concerns negative news is among factors influencing the hardness of the landing of the current credit-crisis, whereas positive news might have been a contributing factor in the build-up of asset- and housing bubbles.

JEL classification: E00, E32, H31

Key words: Consumer Confidence; Media; VAR-analysis.

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I. Introduction

The media are now frequently blamed for both deepening the credit-crisis[1] as well as failing to see it coming. The general argument underlying this somewhat diffuse allegation is that gloomy news weakens consumer confidence beyond the point justified by real economic conditions. By depressing consumption lower consumer confidence adds to a negative spiral of declining demand, contracting production, soaring unemployment and ever lower consumer confidence with a deflation cum depression scenario where everybody postpones consumption as an ultimate outcome. Additionally, newspapers and other media are criticized for failing to take a critical stance prior to 2008 about rising corporate profits, stocks and house prices, thereby arguably 'cheering' on the asset- and housing-bubble that increased consumer confidence and private consumption.. This paper investigates for the Netherlands in 1990-2008 whether there is an empirical link between media-coverage on the one hand and consumer confidence and economic circumstances on the other hand. By using a VAR-framework the potential endogeneity of both economic conditions and news coverage is taken into account, as both variables are potentially influenced in turn by consumer confidence and each other. The paper is organized as follows. The first section addresses the theoretical underpinning of the media-confidence link, and discusses empirical findings for other countries. The second section discusses the data and the operationalization of the media-variable whereas the last section presents the model and estimation results, as well as several robustness checks.

[1] See for example 'Is the media to blame for the credit-crisis?', *Independent*, November 17th 2008, D. Crossley-Holland, 'Credit crisis: how did we miss it?', D. Schechter , *British Journalism Review*, 20(1), 209, pp. 19-26, and 'MPs assail journalists on credit crisis', *Financial Times*, February 5th 2009, B. Fenton. For a Dutch discussion see 'Media versterken crisis', J. van Duin, *de Journalist*, January 28th 2009 and 'Crisis ook geen lolletje voor RTL Z', W. Dekker, *de Volkskrant*, March 12 2009.

II. Theoretical considerations and related literature

Consumer confidence is influenced by several factors. The most important determinant of consumer confidence is the real economy, as indicated by unemployment, economic growth, and the stock market. The influence of economic developments has been established by many authors, including Vuchelen (2004), Berry and Davin (2004), Otoo (1999), De Boef and Kellstedt (2004) and Jansen and Nahuis (2001). Recently, several authors have established a link between media-coverage and consumer confidence as well. Doms and Morin (2004) find that several media-variables influence consumer confidence for the US in 1978-2003; see also Van Raaij (1989) for a theoretical account for the economic impact of news. Their media-variables include the *R-index*, the number of times 28 newspapers use the word recession in the headline or first paragraph of published articles, the *lay-off* index, the number of times lay-off or job cuts were mentioned, and an *economic recovery* index. Using monthly data, these media-variables, in particular the R-index, enter significantly in a consumer confidence regression, after controlling for economic conditions. A significant role of media-coverage is also found by Alsem et al. (2008), who find for the Netherlands in the period 1998-2002 that media-coverage has a short-run effect on consumer confidence, when controlling for the stock market. Their media-variable captures the mood of coverage; experts judged articles from two large newspapers, (*NRC Handelsblad* and *Telegraaf*), on how gloomy or positive the news-coverage was. A related finding of Zullow (1991) is that in the US between 1955-1989 pessimistic popular songs precede economic downturns by two years. Wu et al. (2002) demonstrate that recession news in the *NYT* influences public perceptions about the state of the economy during the period 1987-1996, especially during times of economic recession, while controlling for the actual state of the economy.

To understand why media coverage matters for consumer confidence, even after controlling for real economic circumstances, insights from the field of communication science, where causes, content and effects of media coverage are central topics can be helpful.

Communication scientists have proposed different mechanisms that account for the effects news coverage has on individuals' attitudes and behaviour. The prevailing ones are *agenda setting* and *framing* (Scheufele and Tewksbury 2007). Agenda setting refers to the notion that the importance that people attribute to an issue is considerably influenced by the attention that media devote to this issue (McCombs and Shaw 1972). Agenda setting theory asserts that media might not determine *what* people think, but *where* they think *about*. Framing assumes that the way mass media report about issues makes a difference. By emphasizing certain aspects of an issue (e.g. problem definitions, solutions) and not others, mass media can directly influence people's attitudes and evaluations about that issue. In several recent empirical studies especially framing effects have been investigated (e.g. Druckman 2005; De Vreese 2005). In the case under study, agenda setting and framing predict that the amount of attention devoted to negative aspects of the economy (e.g. unemployment, recession) results in increased awareness of economic problems among the public and will consequently lower their confidence.

III. The data

The data are from publicly available data sources.[2] The table in the appendix gives a full description of the data, as well as correlations between the variables. The two most important variables are discussed in more detail below.

Consumer confidence figures are derived from a monthly questionnaire. In the first ten days of each month 1000 randomly selected new people are interviewed by telephone, and asked several questions on their perception of the state the economy. Consumer confidence is based upon five of these questions. The questions include two questions on the general state of the economy, one asking how that state evolved the last twelve months, one asking how people

[2] Consumer Confidence was taken from Statline of the Dutch Bureau of Statistics (CBS, "Centraal Bureau voor de Statistiek"). The AEX index was downloaded from yahoo.finance, and media-variables were constructed using the digital newspaper archive LexisNexis.

expect it to develop the next twelve months. Next, it includes two questions on the personal financial position of respondents, again one backward looking with the twelve-month horizon, and one forward looking with the same horizon. A fifth question asks whether it is a good time to purchase durable goods.

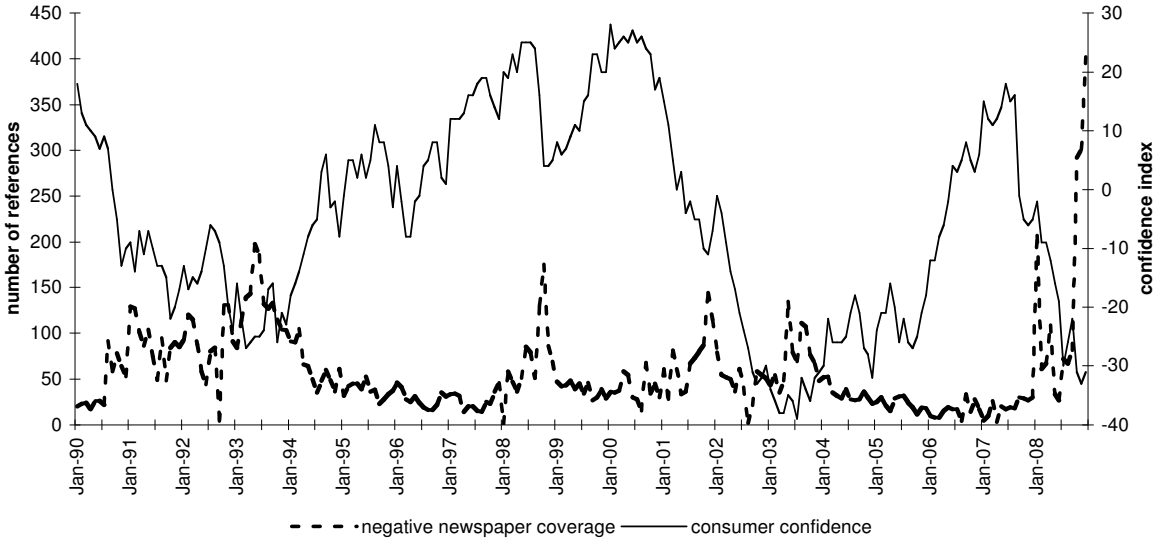
For each category, the Central Bureau of Statistics (CBS) calculates the difference between the percentage of people with a positive or very positive answer and a negative or very negative answer , leaving aside the intermediate answering-category and the answer "I don't know". Consumer confidence is the average of these five calculations, and thus ranges between –100 (if all people answer negatively on all questions) and 100.

To assess media content, we conduct a computer-assisted content analysis of four of the largest Dutch national newspapers (*NRC Handelsblad*, *Volkskrant, Trouw* and *Telegraaf*) as well as the main financial Dutch newspaper (*Financieele Dagblad*). For each newspaper the monthly number of references to negative aspects of the economy are counted. These negative aspects included recession (*recessie*), economic crisis (*economische crisis*), shrinking economy (*economische krimp*) and economic downturn (*economische neergang)* or fall (*economische teruggang*). References on the front page and in the headline of an article were counted twice to account for their more prominent position in the newspaper. Except for the *NRC Handelsblad*, newspapers are only available for parts of the research period in LexisNexis. Since correlation between for the *NRC Handelsblad* and the other newspapers was very high —ranging from .84 to .91 with the individual outlets and .94 with the four other newspapers taken together— we decided to use the *NRC Handelsblad* coverage in further analyses. This centre-right newspaper is one of the most read Dutch newspapers and gives much attention to economic issues (Bakker and Scholten 2005). A total number of 12,979 occurrences in 8,806 articles were registered.

IV. Estimations and results

Figure 1 shows the over-time development of negative news coverage and consumer confidence. As can be seen there is considerable variation in both variables, where peaks in negative news coverage coincide with dips in consumer confidence. The correlation is -0.35, which confirms this idea. To establish the empirical link between consumer confidence and economic news-coverage a VAR-model is estimated. A first advantage of VAR-models is that they allow all variables to be endogenous, which is important here as media-coverage and stock markets returns not only influence consumer confidence but may be influenced by it as well. A second advantage is that the model does not impose parameter-restrictions a priori, as the lag length is part of the estimation procedure and parameters are not restricted to zero as they would under exogeneity assumptions. That comes at a cost, as the estimation of potentially irrelevant parameters decreases efficiency; this is all the more relevant as the number of estimated parameters increases quadratically in the number of variables. In line with other authors, the maximum number of lags included is here restricted to four. This means that we assume that the impact of the media will be in effect within four months. As the psychological and communication scientific effects described are short-run effects, we consider this a reasonable period.

Figure 1. Negative newspaper coverage and consumer confidence in the Netherlands



An assumption underlying the VAR-model is that all variables are stationary. Several Dicky-Fuller tests could not reject the null hypothesis that consumer confidence and the stock market are non-stationary. As the hypothesis of no unit root is rejected for differenced series, both variables are difference stationary or I(1) integrated. Table 1 presents the test results for the variables used in the analysis, where AEX stands for Amsterdam Exchange.

Table 1. Dickey-Fuller unit-root tests (criticial value fot 5% significance is -2.882)

Variable	DF-test
Consumer confidence	-1.753
Δ Consumer confidence	-14.652
Negative newspaper coverage	-3.018
Δ Negative newspaper coverage	-18.856
AEX	-1.377
Δ AEX	-14.327

The first VAR-model includes consumer confidence (abbreviated CC) and negative newspaper coverage (MEDIA).

$$\Delta CC_t = \sum_{i=1}^{k} \beta_i^{CC} \Delta CC_{t-i} + \sum_{i=1}^{k} \beta_i^{CC} \Delta MEDIA_{t-i} + \varepsilon_t^{CC} \quad (1)$$

$$\Delta MEDIA_t = \sum_{i=1}^{k} \beta_i^{MEDIA} \Delta CC_{t-i} + \sum_{i=1}^{k} \beta_i^{MEDIA} \Delta MEDIA_{t-i} + \varepsilon_t^{MEDIA} \quad (2)$$

The results are presented in table 2. The sum of the coefficients of the media-variable in the equation with consumer confidence as the dependent variable is negative, indicating that (changes in) negative news is negatively related to (changes in) confidence, which is in line with expectations. The hypothesis that all media-coefficients are jointly zero is rejected. The media time-series Granger causes consumer confidence, meaning that it has predictive power of consumer confidence over and beyond the explanatory power of lagged values of consumer confidence. The lag length was selected by the Akaike Information Criterion (AIC) with, as discussed, a maximum lag length of four.

Table 2. VAR-analysis consumer confidence and negative newspaper coverage

	ΔCC	ΔMEDIA
Independent variable		
ΔCC		
1st lag	.007 (.066)	.372 (.509)
ΔMEDIA		
1st lag	-.019 (.009)	-.242 (.066)
Constant	-.169 (.278)	2.062 (2.144)
Granger causality test, p-value	.027	.464
R-squared	.02	.06
Number of observations	226	226
AIC	15.5098	

Note. Reported are unstandardized coefficients with standard errors in parentheses

While news-coverage Granger causes consumer confidence, this may be attributable to the economic conditions determining both simultaneously. Therefore the stock market is used as a control variable, following Alsem et al. (2008), Jansen and Nahuis (2001) and Otoo (1999). In principal, the stock market reflects economic circumstances as well as future economic expectations. In so, it serves as a leading economic indicator with the advantage that it is available on a monthly basis, in contrast to quarterly reported economic growth-figures. The second VAR-model extends the previous model with the stock-market (AEX).

$$\Delta CC_t = \sum_{i=1}^{k} \beta_i^{CC} \Delta CC_{t-i} + \sum_{i=1}^{k} \beta_i^{CC} \Delta AEX_{t-i} + \sum_{i=1}^{k} \beta_i^{CC} \Delta MEDIA_{t-i} + \varepsilon_t^{CC} \quad (3)$$

$$\Delta AEX_t = \sum_{i=1}^{k} \beta_i^{AEX} \Delta CC_{t-i} + \sum_{i=1}^{k} \beta_i^{AEX} \Delta AEX_{t-i} + \sum_{i=1}^{k} \beta_i^{AEX} \Delta MEDIA_{t-i} + \varepsilon_t^{AEX} \quad (4)$$

$$\Delta MEDIA_t = \sum_{i=1}^{k} \beta_i^{MEDIA} \Delta CC_{t-i} + \sum_{i=1}^{k} \beta_i^{MEDIA} \Delta AEX_{t-i} + \sum_{i=1}^{k} \beta_i^{MEDIA} \Delta MEDIA_{t-i} + \varepsilon_t^{MEDIA} \quad (5)$$

Table 3 presents the results of the VAR-analysis given in equations 3-5. The Akaike Info Criterion again suggests a model that includes one lag the most appropriate. The results are similar to the ones presented in table 2: negative news has negative impact on consumer confidence. Every referral to negative economic developments knocks of almost 0.02 point of consumer confidence. When the two VAR-models are estimated in levels instead of differences, results are similar, that is, the impact of media-coverage on consumer confidence is negative, significant and substantial. Though this procedure is invalid as consumer confidence and the stock market are non-stationary, it is reassuring that results do not depend on a particular model-specification.

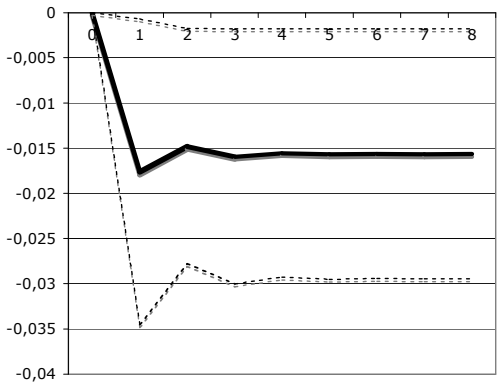
Table 3. VAR-analysis consumer confidence, negative newspaper coverage and AEX

	ΔCC	ΔMEDIA	ΔAEX
Independent variable			
ΔCC			
1st lag	-.024 (.071)	.901 (.536)	.087 (.388)
Granger causality test, p-value	.720	.093	.821
ΔMEDIA			
1st lag	-.018 (-.009)	-.266 (.066)	-.141 (.048)
Granger causality test, p-value	.041	.000	.003
ΔAEX			
1st lag	.016 (.013)	-.269 (-.098)	.004 (.071)
Granger causality, p-value	.210	.006	.944
Constant	-.188 (.278)	2.375 (1.12)	.775 (1.529)
R-squared	.029	.091	.040
Granger causality test for all, p-value	.038	.017	.011
Number of observations	226	226	226
AIC	24.4568		

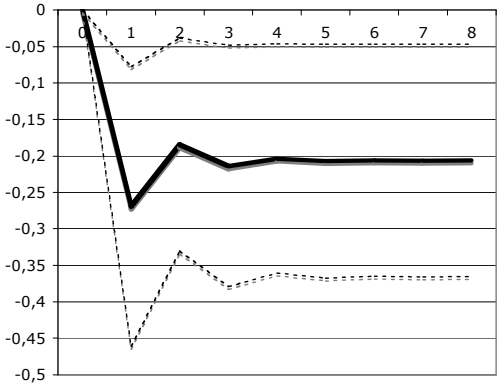
Note. Reported are unstandardized coefficients with standard errors in parentheses

While the main focus is on the influence of media on consumer confidence, it is also interesting to consider the relationship between the AEX index and negative newspaper coverage. As one would expect, there exists a negative influence from AEX on coverage: the better the stock market is doing, the less negative economic coverage. Interestingly enough, negative newspaper coverage also influences the AEX index: negative coverage results in decreasing stock prices. Finally, figures 2a-c display the cumulative impulse response functions of those relations that are found to be significant. They illustrate the long-term effects of changes in media coverage and AEX index.

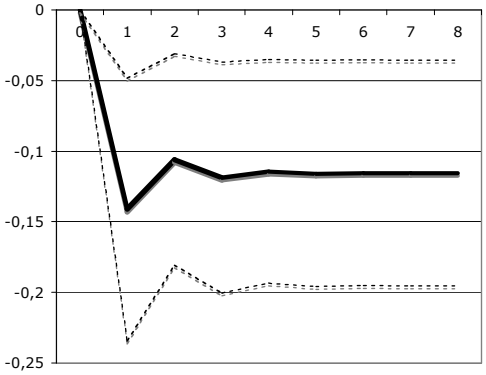
Figure 2. Cumulative impulse response functions



(a)



(b)



(c)

Note. (a) response of consumer confidence to a one-unit increase in negative news coverage; (b) response of negative news coverage to a one-unit increase in AEX; (c) response of AEX to a one-unit increase in negative newspaper coverage. Dotted lines indicate 95%-confidence intervals.

V. Discussion and conclusion

This paper has investigated the causal relation between media, the economy and consumer confidence in the Netherlands between 1990-2008. The main finding is that amount of negative news, as operationalized by the monthly referrals to negative economic developments in one of the Dutch leading newspapers, Granger-causes consumer confidence, controlling for economic circumstances, as proxied by the stock market. In particular, each article containing a negative economic reference results in a 0.02 points decrease in consumer confidence. Apart from being interesting in its own right, the importance of consumer confidence for consumer spending and, thereby, for economic growth has been established by for example Acemoglu and Scott (1994(and is reviewed by Ludvigson (2004).

This shows that the claim that news coverage has real economic consequences, via consumer confidence, has validity. Those results in turn suggest that journalists should consider the independent impact their reporting has on consumers. By amplifying negative economic developments, as the extremely high values of negative newspaper coverage towards the end of our research period indicate, media contribute to a development of declining consumer confidence. In those cases, a more toned down coverage seems appropriate. The other way round, more critical stances in the face of up going economic trends that might turn out to be unsustainable might be warranted.

Additionally, our analyses reveal a mutual causal relationship between stock market rates and negative economic coverage. Especially the result that the AEX index is influenced by changes in negative economic newspaper coverage is compelling. Ultimately, it might imply that stock market analysts profit from considering media coverage as an important variable when understanding and forecasting changes in stock prices. While further research should point out whether this predictability is really exploitable in trading strategies, it underlines that media-attention might also have a direct economic effect. Overall, the paper demonstrates the value of

media coverage as an independent and relevant factor in economic analyses that consequently deserves more attention, both theoretically and empirically.

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Appendix

Table A1. Descriptive statistics

Variable	Mean	Standard deviation	Min, max
Consumer Confidence	-4.8	17.6	(-39, 28)
Δ Consumer Confidence	-0.2	4.2	(-17, 11)
MEDIA	56.9	49.7	(1,402)
Δ MEDIA	1.7	33.2	(-146,211)
AEX	349.4	168.4	(103.3, 694.)
ΔAEX	0.5	23.4	(-81.4, 79.9)

Table A2. Correlations

	CC	ΔCC	MEDIA	ΔMEDIA	AEX	ΔAEX
CC	1					
Δ CC	-.12	1				
MEDIA	-.35	-.11	1			
Δ MEDIA	-.04	-.10	.49	1		
AEX	.46	.13	-.28	-.01	1	
Δ AEX	.18	.37	-.22	-.17	.05	1